

1	GATATTGGCT	ATTGCCATT	GCATACGTTG	TATCCATATC	ATAATATGTA	CATTATATT	GGCTCATGTC	CAACATTACC	80
81	GCCATGTTGA	CATTGATTAT	TGACTAGTTA	TTAATAGTAA	TCAATTACGG	GGTCATTAGT	TCATAGCCA	TATAATGGAGT	160
161	TCGGCGTTAC	ATAACTTACG	GTAATGGCC	CGCCTGGCTG	ACCGCCAAC	GACCCCCGCC	CATTGACGTC	AATAATGACG	240
241	TATGTTCCCA	TAGTACGCC	AATAGGGACT	TTCCATTGAC	GTCAATTGGT	GGAGTATTAA	CGGTAACATG	CCCACTTGGC	320
321	AGTACATCAA	GTGTATCATA	TGCCAAGTAC	GCCCCCTATT	GACGTCATG	ACGGTAATG	GCCCCCTGG	CATTATGCC	400
401	AGTACATGAC	CTTATGGAC	TTCCCTACTT	GGCAGTACAT	CTACGTATTA	GTCAATCGCTA	TTACCATGGT	GATGCGGGTT	480
481	TGGCAGTACA	TCAATGGCG	TGGATAGCGG	TTTGACTCAC	GGGGATTTC	AAGTCTCCAC	CCCATTGACG	TCAATGGAG	560
561	TTTGTGTTGG	CACCAAAATC	AACGGGACTT	TCCAATAATG	CGTAACAACT	CCGGCCCCATT	GACGAAATG	GGCGGTAGGC	640
641	GTGTACGGTG	GGAGGTCTAT	ATAAGCAGAG	CTCGTTAGT	GAACCGTCAG	ATCGCCTGGA	GACGCCATCC	ACGCTGTTTT	720
721	GACCTCCATA	GAAGACACCG	GGACCGATCC	AGCCTCCGG	GGCGGAACG	GTGCATTGGA	ACGGGATTC	CCCGTGCACAA	800
801	GAGTGACGTA	AGTACCGCCT	ATAGAGTCTA	TAGGCCACC	CCCTTGGCTT	CTTATGCCATG	CTATACTGTT	TTTGGCTTGG	880
881	GGTCTATACA	CCCCCGCTTC	CTCATGTTAT	AGGTGATGGT	ATAGCTTAGC	CTATAGGTTGT	GGTTTATTGA	CCATTATTGA	960
961	CCACTCCCT	ATTGGTGAAG	ATACCTTCCA	TTACTAATCC	TTACTAATCC	CTTTGGCAC	AACTCTCTT	ATGGCTATA	1040
1041	TGCCAATACA	CTGTCTTCA	GAGACTGACA	CGGACTCTGT	ATTTTACAG	GATGGGGTCT	CATTATTAT	TTACAAATTTC	1120
1121	ACATATCAA	CACCAACGTC	CCCACTGCC	GGAGTTTTA	TTAAACATAA	CCTGGGATCT	CCACGGGAAT	CTCGGGTAGC	1200
1201	TGTTCCGGAC	ATGGGCTCTT	CTCCGGTAGC	GGGGAGCTT	CTACATCCGA	GGCCTGCTCC	CATGCCCTCA	GGGACTCATG	1280
1281	GTCGCTCGGC	AGCTCTTGC	TCCTAACAGT	GGAGGCCAGA	CTTAGGCACA	GCACCGATGCC	CACCAACACC	AGTGTGCCGC	1360
1361	ACAAGGGCGT	GGGGTAGGG	TATGTTCTG	AAAATGAGCT	CGGGGAGCGG	GCTTGCACCG	CTGAGCATT	TGAAAGACTT	1440
1441	AAGGCAGCGG	CAGAAGAAGA	TGCAAGCAGC	TGAGTTGTTG	TGTTCTGATA	AGAGTCAGAG	GTAACTCCCG	TTGCGGTGCT	1520
1521	GTTAACGGTG	GAGGGCAGTG	TAGTCTGAGC	AGTACTCGTT	GCTGCCGC	GGGCCACCG	ACATAATAGC	TGACAGACTA	1600
1601	ACAGACTGTT	CCTTCCATG	GGTCTTTCT	GCAGTCACCG	TCCCTAGATC	TAGGTACAG	ATATCAGAAAT	TCAGTCGACA	1680
1680	GCGGCCGCGA	TCTGCTGTGC	CTTCTAGTTG	CCAGCCATCT	GTTGTTGCC	CCTCCCCCGT	GCCTCCCTTG	ACCCCTGGAAAG	1760
1761	GTGCCCACTCC	CAGTGTCCCT	TCCTAATAAA	ATGAGGAAT	TGCAATGGAT	TGTCCTGAGTA	GGTGTCAATTC	TATTCTGGGG	1840
1841	GCTGGGGTGG	GGCAGCACAG	CAAGGGGAG	GATTTGGGAAG	ACAATAGCAG	GATGCGCTGGG	GCTCTATGGG	1920	
1921	TACGGCCGCA	GGGGCTTAA	TTAAGGCCGC	AGGGCCGTA	CCCAGGTGCT	GAAGAATTGA	CCCGGGTTCT	CGACCCGTAA	2000

FIG. 1 A

2001	AAAGGCCGCG	TTGCTGGCGT	TTTCCATAG	GCTCCGGCCC	CCGTACGAGC	ATCACAAAAA	TCGACGCTCA	AGTCAGAGGT	2080								
2081	GGCGAAACCC	GACAGGACTA	TAAGATAAC	AGGGTTTCC	CCCTGGAAAGC	TCCCTGTGC	GCTCTCCGT	TCCGACCCCTG	2160								
2161	CCGCTTACCG	GATACCTGTC	CGCCTTCTC	CCTTCGGAA	GCCTGGGCT	TCACGCTGTA	GGTATCTCAG	2240									
2241	TTGGTGTAG	GTCGTTGCT	CCAAGCTGGG	CTGTTGAC	GAACCCCCCG	TTCAAGCCGA	CCGCTGCC	TTATCCGGTA	2320								
2321	ACTATGCT	TGAGTCCAAC	CCGTAAGAC	ACGACTTATC	GCCACTGGCA	GCAGGCCACTG	GTAACAGGAT	TAGCAGAGCG	2400								
2401	AGGTAIGTAG	GCGGTGCTAC	AGAGTTCTG	AAGTGGTGGC	CTAACTACGG	CTACACTAGA	AGGACAGTAT	TTGGTATCTG	2480								
2481	CGCTCTGCT	AAGCCAGTT	CCTTCGGAAA	AAGAGTTGGT	AGCTCTTGT	CCGGAAACCA	AACCACCGCT	GGTAGGGGTG	2560								
2561	GTTTTTGT	TTGCAAGCAG	CAGATTACGC	GCAGAAAAAA	AGGATCTCAA	GAAGATCCTT	TGATCTTTTC	TACGTGATCC	2640								
2641	CGTAATGCTC	TGCCAGTGT	ACAACCAATT	AACCAATTCT	GATTGAAAAA	ACTCATCGAG	CATCAAATGA	AACTGCAATT	2720								
2721	TATTATATC	AGGATTATCA	ATACCATAATT	TTTGGAAAAG	CCGTTTCTGT	AATGAAGGAG	AAAACCTACCC	GAGGCAGTTTC	2800								
2801	CATAGGATGG	CAAGATCTG	GTATCGGTCT	GGGATTCCGA	CTCGTCCAAC	ATCAATACAA	CCTATTAAATT	TCCCTCGTC	2880								
2881	AAAATAAGG	TTATCAAGTG	AGAAAATCACC	ATGAGTGAACG	ACTGAATCG	GTGAGAATGG	CAAAGCTTA	TGCAATTCTT	2860								
2961	TCCAGACTTG	TTCAACAGGC	CAGGCCATTAC	GCTCGTCATC	AAAATCACTC	GCATCAACCA	AACCGTTATT	CATTCTGTAT	3040								
3041	TGCGCCTGAG	CGAGACGAAA	TACGGGATCG	CTGTTAAAAG	GACAATTACA	AACAGGAATC	GAAATGCAACC	GGGCAGGAA	3120								
3121	CACTGCCAGC	GCATCAACAA	TATTTTCACC	TGAATCAGGA	TATTCTTCTA	ATACCTGGAA	TGCTGTCTTC	CGGGGGATCG	3200								
3201	CAGTGGTGAN	TAACCATGCA	TCATCAGGAG	TACGGATAAA	ATGCTTGATG	GTGGAAAGAG	GCATAAAATTC	CGTCAGGCCAG	3280								
3281	TTTAGTCTGA	CCATCTCATC	TGTAACATCA	TTGGCAACGC	TACCTTTGCC	ATGTTTCAGA	AACAACTCTG	GCGCATCGGG	3360								
3361	CTTCCCATAC	AATCGATAGA	TTGTCGACC	TGATTGCCCG	ACATTATGCC	GAGCCATT	ATACCCATAT	AAATCAGCAT	3440								
3441	CCATGTTGGA	ATTTAATCGC	GGCCTCGAGC	AAGACGTTTC	CGGTGCAATA	TGGCTCATAA	CACCCCTTGT	ATTACTGTTT	3520								
3521	ATGTAAGCAG	ACAGTTTTAT	TGTTCATGAT	GATATAATTT	TATCTTGTGC	AATGTAACAT	CAGAGATT	GAGACACAAC	3600								
3601	GTGGCTTTCC		10		20		30		40		50		60		70		80

FIG. 1B

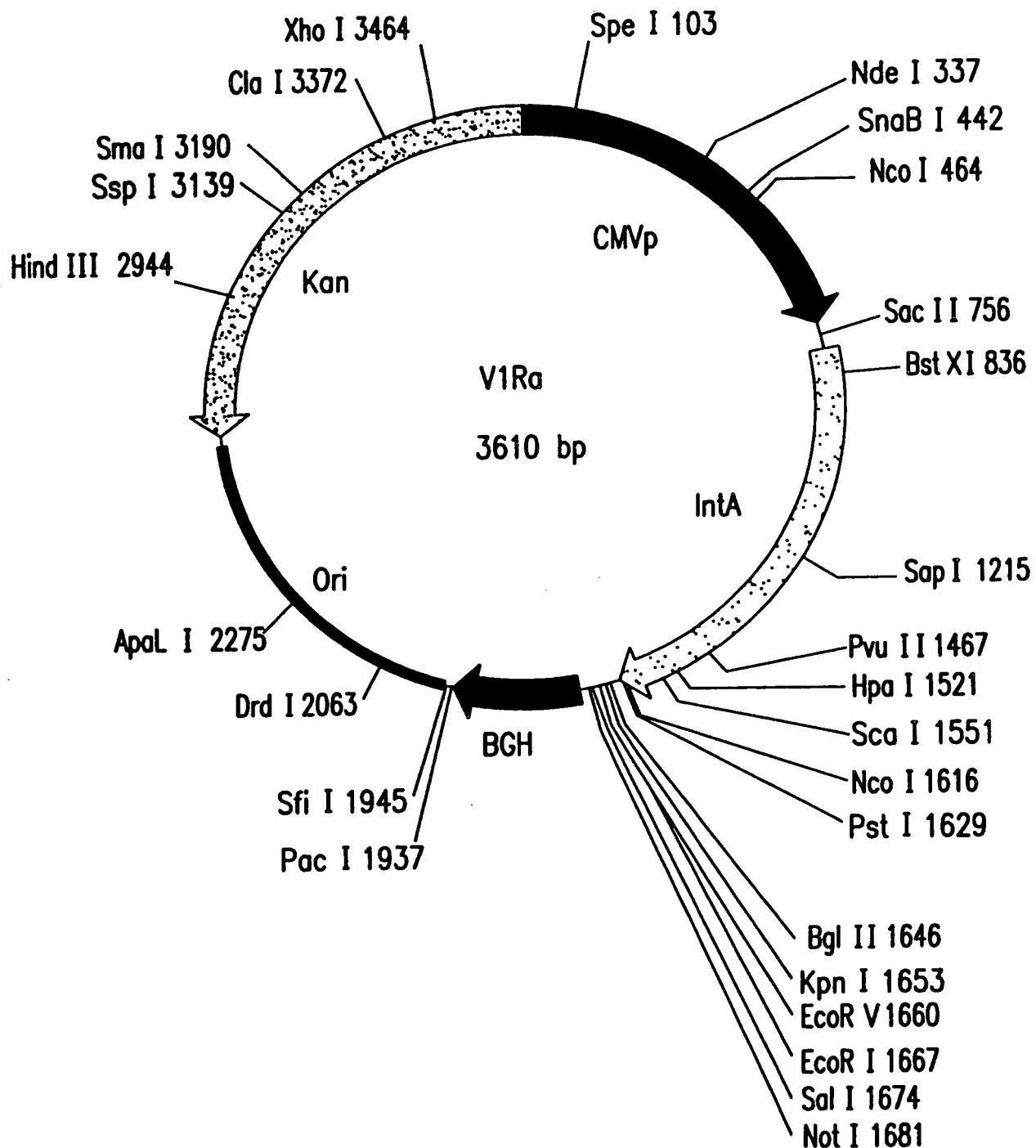


FIG.2

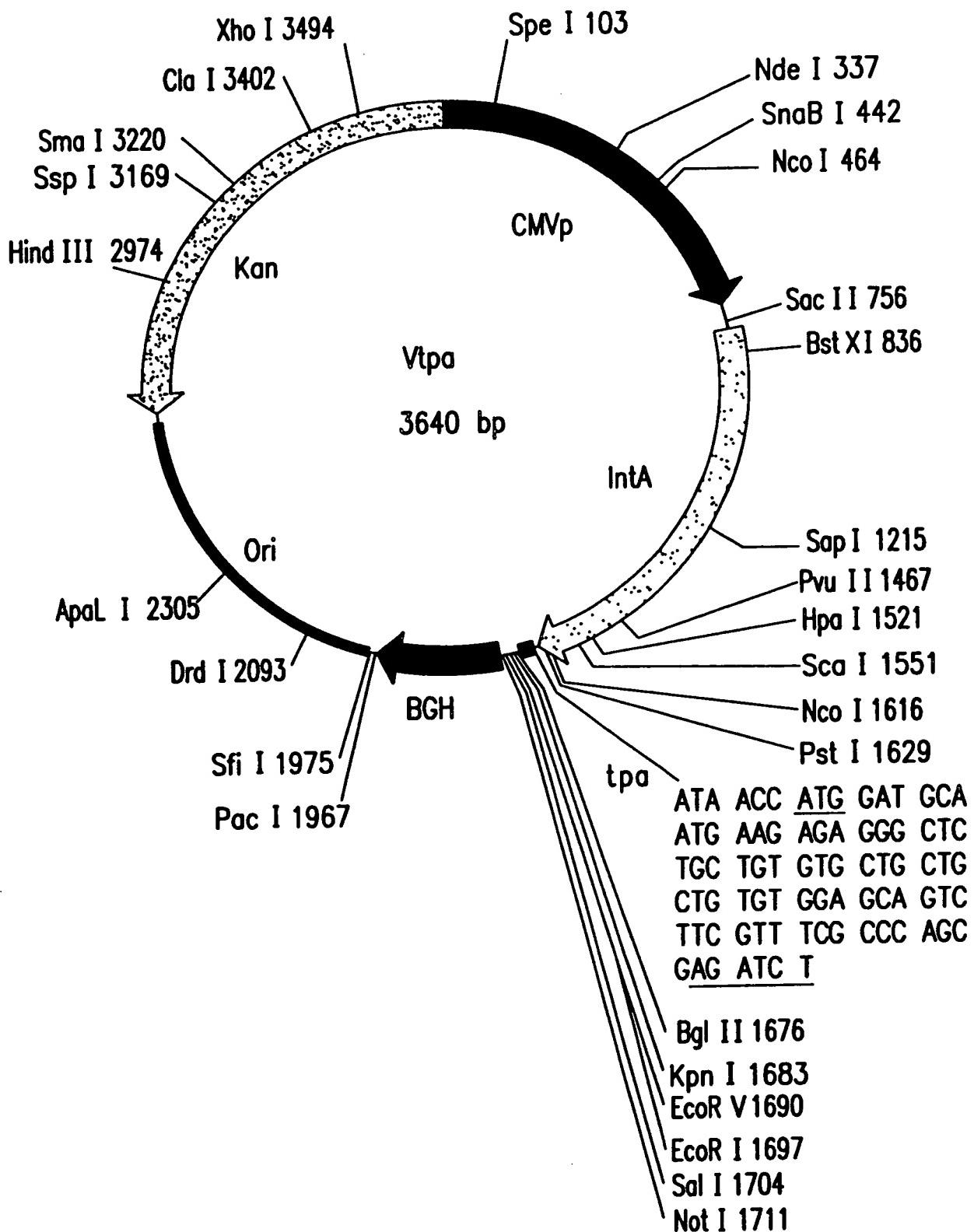


FIG.3

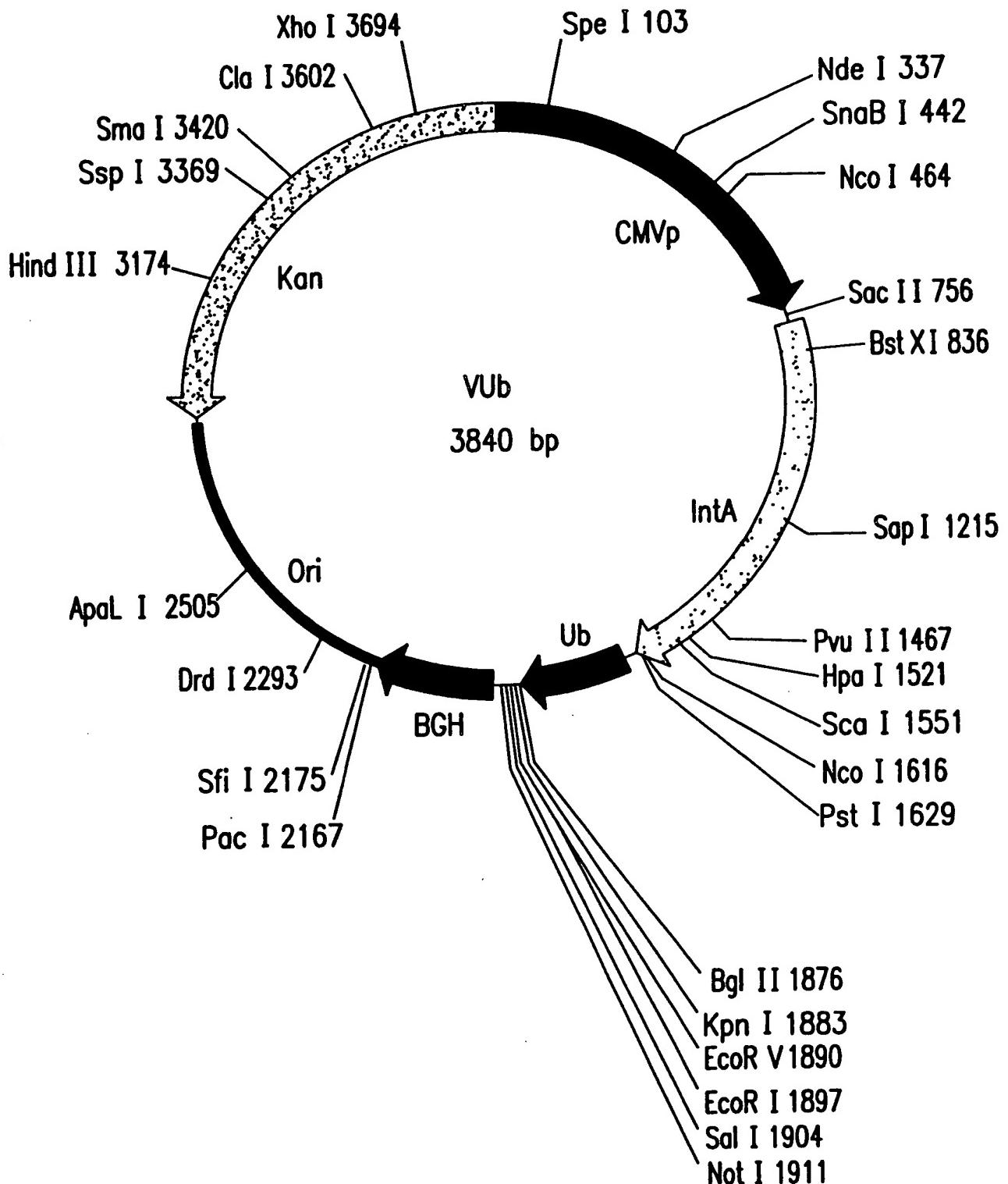


FIG.4

1/1 ATG AGC ACC AAC CCC AAG CCG CAG AGG AAG ACC AAG AAC AAC AAG aGg aGg CCCAG
 Met ser thr asn pro lys pro gln arg lys thr lys arg asn thr asn arg arg pro gln
 61/21 GAT GTg AAG TTC CCT GGg GGC CAG ATT GTg GGA GGg GTC TAC CTG CTG CCC aGg AGG
 asp val lys phe pro gly gly gln ile val gly gly val tyr leu leu pro arg arg
 121/41 GGC CCC AGG CTG GGg GTG aGg GCT ACC aGG AAG ACC TCT GAG aGG TCC CAG CCC aGg GGC
 gly pro arg leu gly val arg ala thr arg lys thr ser glu arg ser gln pro arg gly
 181/61 AGG aGg CAG CCC ATC CCC AAG GCC aGG aGG CCT GAG GGC CGC TCC TGG GCC CAG CCT GGC
 arg arg gln pro ile pro lys ala arg pro glu gly arg ser trp ala gln pro gly
 241/81 TAC CCC TGG CCC CTg TAT GGC AAT GAA GGC TTT GGC TGG GCT GGC TGG CTG CTG TCC CCC
 try pro trp pro leu tyr gly asn glu gly phe gly trp ala gly trp leu leu ser pro
 301/101 aGg GGC TCC aGG CCC tcc TGG GGC CCC Aca GAC CCC aGG aGG TCC aGg AAC CTG GGC
 arg gly ser arg pro ser trp gly pro thr asp pro arg arg ser arg asn leu gly
 361/121 391/131
 AAg GTg ATT GAC ACC CTg ACC TGT GGC TTT GCT GAC CTg ATG GGC TAC ATC CCC CTg GTg
 lys val ile asp thr leu thr cys gly phe ala asp leu met gly tyr ile pro leu val
 421/141 451/151
 GGG GCT CCT GTg GGA GGg GTg Gct AGG GCT CTG GCT CAT GGG GTg AGG GTg CTG GAG GAT
 gly ala pro val gly gly val ala arg ala leu ala his gly val arg val leu glu asp
 481/161 511/171
 GGG GTG AAC TAT GCT ACT GGC AAC CTG CCT GGC TGC TCC TTC TCC ATC TTC CTg CTG GGC
 gly val asn tyr ala thr gly asn leu pro gly cys ser phe ser ile phe leu leu ala
 541/181 571/191
 CTG CTC TCC TGC CTG ACa GTg CCT GCT TCT GGC
 leu leu ser cys leu thr val pro ala ser ala

FIG. 5

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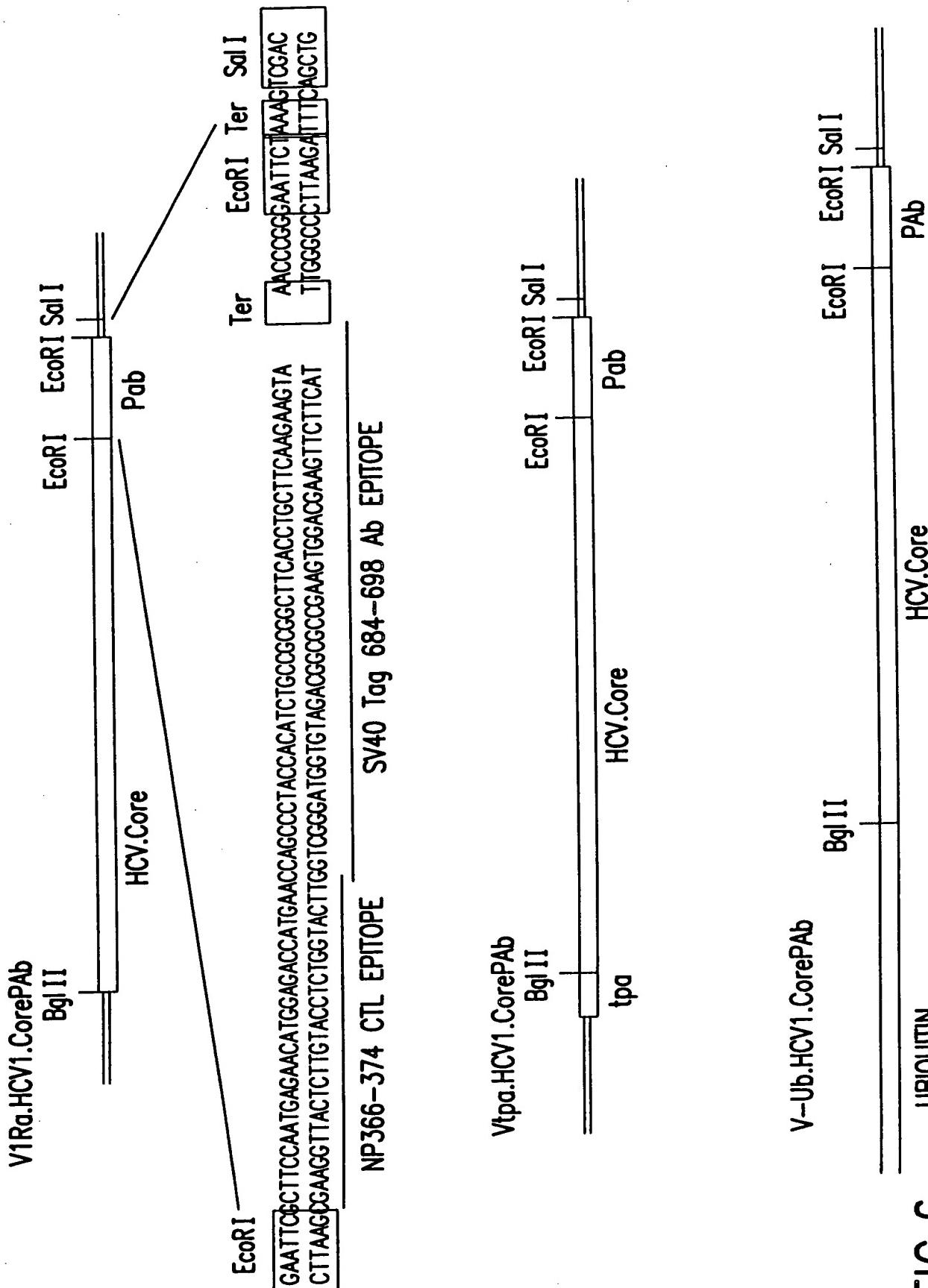


FIG. 6

1/1	ATG ACG AAT CCT AAA CCT CAA AGA AAA ACC AAA CGT AAC ACC AAC CGC CGC CCa CAG Met ser thr asn pro lys pro aln arg lys thr lys arg asn thr asn arg arg pro gln	31/31
61/21	GAC GTC AAG TTC Ccg GGC GGT CAG ATC GTT Ggt GGA GTT TAC TTC TTG CCG CGC AGG asp val lys phe pro gly gly gln ile val gly gly val <u>tyr</u> <u>leu</u> <u>leu</u> <u>pro</u> <u>arg</u> <u>arg</u>	91/31
121/41	GGC CCC AGG TTG GGT GTG CGC GCG ACT aGG AAG ACT TCC GAG CGG TCG CAA CCT CGT GGa <u>gly</u> <u>pro</u> <u>arg</u> <u>leu</u> <u>gly</u> <u>val</u> <u>arg</u> <u>ala</u> <u>thr</u> <u>arg</u> <u>lys</u> <u>thr</u> <u>ser</u> <u>glu</u> <u>arg</u> <u>ser</u> <u>gln</u> <u>pro</u> <u>arg</u> <u>gly</u>	151/51
181/61	AGG CGa CAG CCT ATC CCC AAG GCT CGC CGG CCC GAG GGC AGG TCC TGG GCT CAG CCC GGG arg arg gln pro ile pro lys ala arg arg pro glu gly arg ser trp ala gln pro gly	211/71
241/81	TAC CCT TGG CCC CTC TAT Ggc AAT GAg GGC Ttc GGG Tgg GCA GGa Tgg CTC CTG TCC CCC tyr pro trp pro leu tyr gly asn glu gly phe gly trp ala gly trp leu leu ser pro	271/91
301/101	GGC TCT CGg Oct agT TGG GGC CCC ACT GAC CCC CGG CGt AGG TCG OGG AAT TTG GGT arg gly ser arg pro ser trp gly pro thr asp pro arg arg ser arg asn leu gly	331/111
361/121	AAG GTC ATC GAT ACC CTC ACG TGC GGC TTC GCC GAC CTC ATG GGG TAC ATC CCG CTC GTC lys val ile asp thr leu thr cys gly phe <u>ala</u> <u>asp</u> <u>leu</u> <u>met</u> <u>gly</u> <u>tyr</u> <u>ile</u> <u>pro</u> <u>leu</u> <u>val</u>	391/131
421/141	GGC CCC GTA GGG GGC GTC GCC Agg GCC CTG GCG CAT GGC GTC AGG GtT CTG GAG GAC gly ala pro val gly gly val ala arg ala leu ala his gly val arg val leu glu asp	451/151
481/161	GGG gtg AAC TAT GCA ACA GGG AAt tTg cCC GGT TGC TCT TTG ATC TTC CTC cTG GAG GAC glu val asn tyr ala thr gly asn leu pro gly cys ser phe ser ile phe <u>leu</u> <u>leu</u> <u>ala</u>	511/171
541/181	CTg CTg TCC TGC CTG ACC GTC CCA GCT TCT GCT leu leu ser cys leu thr val pro ala ser ala	571/191

FIG. 7

TABLE 3
CODON UTILIZATION IN HUMAN PROTEIN-CODING SEQUENCES

	a	b	c	d	e	f		a	b	c	d	e	f
F	UUU	68	0.35	193	4.5		Y	UAU	72	0.47	153	3.6	
	UUC	125	0.65					UAC	81	0.53			
L	UUA	20	0.05	445	10.4		H	CAU	44	0.42	105	2.5	
	UUG	42	0.09					CAC	61	0.58			
	CUU	50	0.11				Q	CAA	50	0.26	192	4.5	
	CUC	99	0.22					CAG	142	0.74			
	CUA	30	0.07				N	AAU	51	0.34	148	3.5	
	CUG	204	0.46					AAC	97	0.66			
I	AUU	28	0.23	123	2.9		K	AAA	137	0.45	303	7.0	
	AUC	79	0.64					AAC	166	0.55			
	AUA	16	0.13				D	GAU	79	0.38	209	4.9	
M	AUG	77	1.00	77	1.8			GAC	130	0.62			
V	GUU	35	0.13	266	6.2		E	GAA	125	0.40	311	7.3	
	GUC	72	0.27					GAG	186	0.60			
	GUA	25	0.09				C	UGU	44	0.30	147	3.4	
	GUG	134	0.50					UGC	103	0.70			
S	UCU	59	0.17	349	8.1		W	UGG	56	1.00	56	1.3	
	UCC	91	0.26				R	CGV	19	0.09	215	5.0	
	UCA	37	0.11					CGC	40	0.19			
	UCG	25	0.07					CGA	22	0.10			
	AGU	37	0.11					CGG	33	0.15			
	AGC	100	0.29					AGA	51	0.24			
P	CCU	51	0.24	212	4.9			AGG	50	0.23			
	CCC	86	0.41				G	GGU	36	0.15	245	5.7	
	CCA	51	0.24					GGC	108	0.44			
	CCG	24	0.11					GGA	42	0.17			
T	ACU	47	0.20	238	5.6			GGG	59	0.24			
	ACC	113	0.47				TOTAL 4285 RESIDUES EXCLUDING N-TERMINAL METHIONINE RESIDUES						
	ACA	50	0.21										
	ACG	28	0.12										
A	GCU	91	0.31	298	7.0								
	GCC	119	0.40										
	GCA	51	0.17										
	GCG	37	0.12										

FIG.8

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1/1	atg TAT GAg GTG aGg ATc GTC Tct GGc GtC TAC CAT GTg ACC AAt GAC TGC TCC AAC TCC	31/11
M Y E V R N V S G V Y H V T N D C S N S	61/21	91/31
tGc ATT GTC TAT GAG GtC GAC ATG ATC ATG CAC ACC CCT GGc Tgt GTg CaT Tgt GTg	C I V Y E A D M I M H T P G C V P C V	121/41
aGG GAG GGC AAC TCC TCC aGg TGC TGG GTg GtG ACC CCC ACC CTg GtC GCC AGG AAC	R E G N S S R C W V A L T P T L A A R N	181/61
tCC tCC ATC CCC ACC ACC ATC aGg aGg CAT GTg GAC CTG CTg GTg GGC GtC GtC GCC	S S I P T T I R R H V D L V G A A A	241/81
CTg TGC Tct GCC ATG TAt GTG GGC GAC CTg TGT GGC TCT GtC TTC CtG GTg TCC CAg gTG	L C S A M Y V G D L C G S V F L V S Q L	301/101
TTC ACC TTC TCC CCC aGg aGg TAT GAG ACT GTg CAG GAC TGC AAC TGC TCC CTg TAC CCT	F T F S P R Y E T V Q D C N C S L Y P	361/121
GGC CAT GTC Tct GGC CAC aGg ATG GCC TGG GAC ATG ATG AAC TGG TCC CCC ACC ACT	G H V S G H R M A W D M M N W S P T T	421/141
GCC CTg GTG GTC TCC CAG CTg CTg aGG ATT CCC CAG GtC GTg GTG GAC ATG GTG TGT GGG	A L V V S Q L L R I P Q A V V D M V V G	481/161
GCC CAC TGG GGC GTg CTG GtC GGc CTg GCC TAC TAC TCC ATG GTG GGC AAC TGG GCC AAG	A H W G V L A G L A Y Y S M V G N W A K	541/181
GTg CTG ATT GTG ATG CTg CTg TTT GtC GGC GTg GAt GGC taa *	V L I V M L L F A G V D G *	571/191

FIG. 9

1/1 31/11
 atg ACC ACC TAT GTC TCT GTG GGC CAT GCC tcc CAG ACC ACC aGG aGG GTg GCC TCC TTC
 M T T Y V S V G H A S Q T T R R V A S F
 61/21 91/31
 TTC tcc CCT GGC TCT GCC CAG AAG ATC CAG CTg GTg AAC ACC AAt GGC tcc TGG CAC ATC
 F S P G S A Q K I Q L V N T N G S W H I
 121/41 151/51
 AAC AGG ACT GCC CTG AAt TGC AAt GAG TCC ATC AAC ATC GGC TTC TTT GCT Gcc CTG TTC
 N R T A L N C N E S I N T G F F A A L F
 181/61 211/71
 TAt GTg AAG AAG TTC AAC TCC TCT GGC TGC Tct GAG aGG ATG GGC tct TGC aGG CCC ATT
 Y V K F N S S G C S E R M A S C R P I
 241/81 271/91
 GAC AGG TTt GCC CAG GGC TGG GGC CCC ATC ACC CAT GCT GAG TCC aGG tcc Tct GAC CAG
 D R F A Q G W G P I T H A E S R S D Q
 301/101 331/111
 AGG CCa TAC TGC TGG CAC TAt GCC CCC CAG CCa TGT GGC ATT GTG CCT GCC CTG CAT GTC
 R P Y C W H Y A P Q P C G I V P A L H V
 361/121 391/131
 TGT GGC CCT GTC TAC TGC TTC ACC CCa tcc CCT GTg GTg GGC ACg Act GAC aGg TTT
 C G P V Y C F T P S P V V G T T D R F
 421/141 451/151
 GGC GTg CCC ACC TAC AAC TGG GGC GAC AAT GAG ACT GAT GTG CTg CTG AAC AAC ACC
 G V P T Y N W G D N E T D V L L N N T
 481/161 511/171
 aGG CCC CCC CAg GGC AAC TGG TTT GGC TGC AGC TGG ATG AAC tcc ACT GGC TTC ACC AAG
 R P P Q G N W F G C T W M N S T G F T K

FIG. 10A

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541/181	ACC TGT GGC GGC CCC CCa TGC AAC ATT GGC GGC AAC ACC CTC ACC TGC CCC	571/191	
T C G	G P P C N I G G A G N N T L T C P		
601/201	ACT GAC TGC TTC aGG AAG CAT CCT GAG GCC ACC TAC ACC AAG TGT GGC TCT GGc CCa TGG	631/211	
T D C F R K H P E A T Y T K C G S G P W			
661/221	CTG ACC CCC AGG TGC ATG GTg GAC TAC CCa TAC AGg CTg TGG CAC TAC CCA TGC ACC TTC	691/231	
L T P R C M V D Y P Y R L W H Y P C T F			
721/241	AAC TTC ACC ATC TTC AAG ATG ATG TAT GTG GGC GGC GTG GAG CAC AGG CTg AAT GCT	751/251	
N F T I F K I R M Y V G G V E H R L N A			
781/261	GCC TGC AAC TGG Acc aGg GGC GAG aGg TGC AAC ATT GAG GAC AGG AGG Tct GAG CTg	811/271	
A C N W T R G E R C N I E D R D R S E L			
841/281	tCC CCC CTG CTg CTG TCC Acc ACT GAG TGG CAG ATC CTg CCa TGC TCC TTC ACC CTG	871/291	
S P L L S T T E W Q I L P C S F T T L			
901/301	CCT GCC CTG TCC ACT GGC CTG ATC CA _t CTg CAT CAG AAC ATT GTG GAT GTG CAG TAC CTG	931/311	
P A L S T G L I H L H Q N I V D V Q Y L			
961/321	TAT GGC GTg GGC TCT GCT GTg GTC TCC ATT GTG ATC AAG TGG GAG TAT GTg CTG CTG CTG	991/331	
Y G V G S A V V S I V I K W E Y V L L L			
1021/341	TTC CTg CTg CTG GCT GAt GCc taa		*
F L L A D A			

FIG. 10B

1/1	atg TAT GAG GTG aGg AAt GTC Tct GGc GTC TAC CAT GTg ACC AAt GAC TGC TCC AAC TCC	31/11
M Y E V R N V S G V Y H V T N D C S N S		
61/21	tGC ATT GTC TAT GAG GCT GAC ATG ATC ATG CAC ACC CCT GGc TGT GTg CCA TGT GTg	91/31
C I V Y E A D M I M H T P G C V P C V		
121/41	agg GAG GGC AAC TCC TCC aGg TGC TGG GTg GCC CTg ACC CCC ACC CTG GCT GCC AGG AAC	151/51
R E G N S S R C W V A L T P T L A A R N		
181/61	tCC tCC ATC CCC ACC ACC ATC aGg aGg CAT GTg GAC CTG CTg GTg GGc GCT GCT GCC	211/71
S S I P T T I R R H V D L V G A A A A		
241/81	CTg TGC TCT GCC ATG TAT GTG GGc GAC CTg TGT GGc TCT GTC TTC CTg GTg TCC CAG CTG	271/91
L C S A M Y V G D L C G S V F L V S Q L		
301/101	TTC ACC TTC TCC CCC aGg TAT GAG ACT GTg CAG GAC TGC AAC TGC TCC CTg TAC CCT	331/111
F T S P R R Y E T V Q D C N C S L Y P		
361/121	GGC CAT GTC TCT GGC CAC aGg ATG GCC TGG GAC ATG ATG AAC TGG TCC CCC ACC ACT	391/131
G H V S G H R M A W D M M N W S P T T		
421/141	GCC CTg GTG GTC TCC CAG CTg CTg aGg ATT CCC CAG GCT GTg GTG GAC ATG GTG GTG GGC	451/151
A L V V S Q L L R I P Q A V V D M V V G		
481/161	GCC CAC TGG GGC GTg CTG GCT GGC CTg GCC TAC TAC TCC ATG GTG GGC AAC TGG GCC AAG	511/171
A H W G V L A G L A Y Y S M V G N W A K		

FIG.11A

541/181	GTg CTG ATT GTG ATG CTg CTg TTT GCT GGC GTg GAT GGC ACC ACC TAT GTC TCT GTG GGC	571/191	
V L I V M L L F A G V D G T T Y V S V G			
601/201	CAT GCC tCC CAG ACC ACC aGG aGg GTg GGC TCC TTC TTC tCC CCT GGC TCT GCC CAG AAg	631/211	
H A S Q T T R R V A S F F S P G S A Q K			
661/221	ATC CAg CTg GTg AAC ACC AAt GGC tCC TGG CAC ATC AAC AGG ACT GCC CTG AAT TGC AAt	691/231	
I Q L V N T N G S W H I N R T A L N C N			
721/241	GAG TCC ATC AAC ACT GGC TTC TTT Gct GGC CTG TTC Tat GTg AAG AAG TTC AAC TCC TCT	751/251	
E S I N T G F F A A L F Y V K K F N S S			
781/261	Ggc TGC Tct GAG aGg ATG Gcc tct TGC aGg CCC ATT GAC AGG TTt GcA CAg GGc TGG GGC	811/271	
G C S E R M A S C R P I D R F A Q G W G			
841/281	CCC ATC ACC CAT GCT GAG TCC aGg tCC TCT GAC CAG AGG CCa TAC TGC TGG CAC TAT GCC	871/291	
P I T H A E S R S S D Q R P Y C W H Y A			
901/301	CCC CAg CCa TGT GGC ATT GTG CCT GCC CTG CAT GTc Tgt GGC CCT GTC TAC TGC TTC ACC	931/311	
P Q P C G I V P A L H V C G P V Y C F T			
961/321	CCa tCC CCT GTg GTg GGC ACC Act GAC aGg TTt GGC GTg CCC ACC TAC AAC TGG GGC	991/331	
P S P V V G T T D R F G V P T Y N W G			
1021/341	GAC AAT GAG Act GAT GTG CTg CTg AAC AAC ACC aGG CCC CCC CAg GGC AAC TGG TTe	1051/351	
D N E T D V L L N N T R P P Q G N W F			

FIG. 11B

1081/361	GGC TGC ACC TGG ATG AAC tcc Act GGC TTC ACC AAG ACC TGT GGC CCC CCA TGC AAC	1111/37
1141/381	G C T W M N S T G F T K T C G P P C N	1171/391
1201/401	Att GGC GGC Gct GGC AAC ACC CTG ACC TGC CCC ACT GAC TGC TTC aGG AAG CAT CCT	1231/411
1261/421	E A T Y T K C G S G P W L T P R C M V D	1291/431
1321/441	TAC CCa TAC ACC AAG TGT GGC TCT GGC CCA TGG CTG ACC CCC AGG TGC ATG GTg GAC	1351/451
1381/461	Y P Y R L W H Y P C T F N F T I F K I R	1411/471
1441/481	ATG TAT GTG GGC GGC GTG GAG CAC AGG CTg AAT GCT GCC TGC AAC TGG ACC aGg GGC GAG	1471/491
1501/501	M Y V G G V E H R L N A A C N W T R G E	1531/511
1561/521	aGg TGC AAC ATg GAG CAC AGG GAC AGG Tct GAG CTg tcc CCC CTG CTg CTG TCC ACC ACT	1591/531
S I V I K W E Y V L L F L A D A *	TCC ATT GTG ATC AAg TGG GAG TAT GTg CTG CTg TTC CTg GCT GAt GCC taa	

FIG. 11C

1/1	atg TCT GGC TCC TGG CTg AGG GAT GTC TGG GAC TGG ATC TGC ACT GTG CTG ACT GAC TCC	31/11
M S G S W L R D V W D W I C T V L T D F		
61/21	AAG ACC TGG CTg CAT TCC AAG CTg CTG CCC aGG CTG CCT GGC GAC CCA TTC TTC TCC TGC	91/31
K T W L H S K L L P R L P G D P F F S C		
121/41	CAG aGg GGC TAC AGG GGC GTC TGG aGG GGC GAT GGC GTg ATG CAG ACC ACC TGC CCA TGT	151/51
Q R G Y R G V W R G D G V M Q T T C P C		
181/61	GCC CAG ATC ACT GGC CAT GTg AAg AAt GGC TCC ATG AGG ATT GTg GGC CCC AAg ACC	211/71
G A Q I T G H V K N G S M R I V G P K T		
241/81	TGc tCC AAC ACC TGG CAT GGC ACC TTC CCC ATC AAt GCC TAC ACC ACT GGC CCA TGC ACC	271/91
C S N T W H G T F P I N A Y T T G P C T		
301/101	CCa CCT GCC CCC AAC TAC TCC AGG GCC CTG TGG AG GTG GCT GCT GAG GAG TAT GTG	331/111
P S P A P N Y S R A L W R V A A E Y V V		
361/121	GAG GTg ACC aGG GTG GGC GAC TTC CAC TAT GTG ACT GGC ATG ACC ACT GAC AAt GTg AAg	391/131
E V T R V G D F H Y V T G M T T D N V K		
421/141	TGC CCA TGC CAG GTg CCT GCC CCT GAG TTC TTC ACT GAg GTG GAT GGC GTG aGG CTG CAC	451/151
C P C Q V P A P E F F T E V D G V R L H		
481/161	AGG TAT GCC CCT GCC TGC AAg CCC CTg CTg aGG GAT GAG GTg ACC TTC CAG GTg GGC CTg	511/171
R Y A P A C K P L R D E V T F Q V G L		

FIG. 12A

541/181	AAC CAG TTC CCT GTg GGC TCC CAG CTg CCa	TGT GAG CCT GAg CCT GAT GTg Act GTG CTg	571/191
N Q F P V G S Q L P C E P D V T V L			
601/201	ACC TCC ATG CTg ACT GAg CCa TCC CAC ATC	ACT Gct GAG ACT GCC AAG aGG AGG cTG GCC	631/211
T S M L T E P S H I T A E T A K R R L A			
661/221	AGg GGC TCC CCT CCa TCC CTG GCC tCC TCC	TGCC tCC CAG CTG TCT Gct CCa TCC CTG	691/231
R G S P S L A S S Q L S A P S L			
721/241	AAG GCC ACC TGC ACC ACC aGG CAT GAC TCC	CCT GAT GCT GAC CTg ATT GAG GCC AAC CTg	751/251
K A T C T T R H D S P D A D L I E A N L			
781/261	CTG TGG aGG CAG GAG ATG GGC AAC ATC ACC	aGG GTG GAG TCT GAG AAC AAG GTg GTg	811/271
L W R Q E M G G N I T R V E S E N K V V			
841/281	ATC CTg GAC TCC TTT GAg CCC CTg aGG GCT	GAG GAG GAT GAG AGG GAg GTC TCT GTG GCT	871/291
I L D S F E P L R A E E D E R E V S V A			
901/301	GCT GAG ATC CTg aGG AAg tCC AGG AAG TTC	CCC CCT GCC CTG CCC ATC TGG GCg aGG CCa	931/311
A E I L R K S R K F P P A L P I W A R P			
961/321	tCC TAC AAC CCa CCC CTg GAG TCC TGG AAG GAC	CCT GAC TAT GTg CCC CCT GTG GTg	991/331
S Y N P P L L E S W K D P D Y V P P V V			
1021/381	CAt GGC TGC CCC CTG CCC ACC ATG GCC CCa	CCc ATC CCC CCa CCC aGG AGG AAG AGG	1051/371
H G C P L P T M A P P I P P R R K R			

FIG. 12B

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1081/361	ACT GTg CTg ACT GAg TCC Act GTC TCC TCT GCC CTG GCT GAG CTg GCC ACC AAG ACC T V L T E S T V S S A L A E L A T K T	1111/371
1141/381	TTC GGC tCC Tct GGc TCC Tct GCT GTg GAC tct GGC Act GCC ACG CCC CCT GAC CAG F G S S G S A V D S G T A T A P P D Q	1171/391
1201/401	CCa TCT GAT GAT GGC GAC AGg GGc Tct GAT GAT GAG TCC TAC TCC ATG CCC CCC CTg P S D G D R G S D D E S Y S M P P L	1231/411
1261/421	GAG GGC GAG CCT GGC GAC CtG tct GAt GGC TCC TGG TCC ACT GTC tct GAG GAG E G E P G D P D L S W S T V S E E	1291/431
1321/441	GCC tct GAG GAT GTg GCC TGC TGC TCC Act GTC tct GAG GAG A S E D V A C C S	*

FIG. 12C

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1/1	ATG TCC TAC ACC TGG ACT GCC GCC CTg ATC ACC CCa TGT GCT GAG GAG tcc AAG Ctg M S Y T W T G A L I T P C A A E E S K L	31/11
61/21	CCC ATC AAC CCC CTG tcc AAC TCC CTG CTG aGg CAT CAC AAC ATG GTC TAT GCC ACC ACC P I N P L S N S L L R H H N M V Y A T T	91/31
121/41	TCC aGg tct GCT GGC CTg aGG CAG AAG AAG GTg ACC TTT GAC AGg CTG CAT GTg CCT GAt S R S A G L R Q K V T F D R L H V P C	151/51
181/61	GAC CAC TAC aGG GAT GTG CTg AAG GAG ATG AAG GCC AAG GCC TCC ACT GTg AAG GCG AAg D H Y R D V L K E M K A K A S T V K A K	211/71
241/81	CTg CTg TCT GTg GAg GAg GCC TGC AAG CTG ACC CCT CCC CAC TCT GCC AGg TCC AAg TTT L L S V E E A C K L T P P H S A R S K F	271/91
301/101	GGC TAT GGC GCC AAG GAt GTg aGG AAC CTg TCC tcc AAG GCT GTg AAC CAC ATC CAC TCT G Y G A K D V R N L S S K A V N H I H S	331/111
361/121	GTC TGG AAG GAC CTG CTG GAg GAC ACT GAg ACC CCC ATT GAC ACC ATC ATG GCC AAg V W K D L L E D T E T P I D T T I M A K	391/131
421/141	AAT GAG GTC TTc TGT GTg CAG CCT GAG AAg GGc GGc aGg AAG CCT GCC aGg CTg ATT GTC N E V F C V Q P E K G G R K P A R L I V	451/151
481/161	TTC CCT GAg CTg GGC GTg aGg GTG TGT GAG AAG ATG GCC CTg TAT GAt GTG GTC TCC ACC F P E L G V R V C E K M A L Y D V V S T	511/171

FIG. 13A

541/181	CTg CCC CAG Gct GTG ATG GGC TCC TCC TAT	571/191	GGc TTC CAG TAC TCC CCT GGC CAG aGG GTg
L P Q A V M G S S Y	G F Q Y S P G Q R V	601/201	631/211
GAG TTC CTG GTG AAT GCC TGG AAg TCC AAG AAC CCC ATG GGC TTT GCC TAC TGC ACC			
E F L V N A W K S K N P M G F A Y C T			
661/221	aGg TGC TTT GAC TCC Act GTg ACT GAG tCT GAC ATC agg GTg GAG GAG TCC ATC TAC AG	691/231	
R C F D S T V T E S D I R V E S I Y Q			
721/241	TGc TGT GAC CTG Gct CCT GAG GCC AGg CAG GTg ATC AGG TCC CTg ACT GAG aGG CTg TAC	751/251	
C C D L A P E A R Q V I R S L T E R L Y			
781/261	ATt GGC GGC CCC CTG ACC AAC TCC AAg GGC CAG AAC Tgt GGC TAC aGG aGG TGC aGg GCC	811/271	
I G G P L T N S K G Q N C G Y R R C R A			
841/281	tct GGC GTG CTG ACC ACT AAC TGT GGC AAC ACC CTg ACC TGC TAC CTG AAG GCC TCT GCT	871/291	
S G V L T T N C G N T L T C Y L K A S A			
901/301	GCT TGC aGg GCT GCC AAG CTg CAT GAC TGC ACC ATG CTg GTC Tgt GGC GAT GAC CTg GTg	931/311	
A C R A A K L H D C T M L V C G D D L V			
961/321	GTg ATC TGT GAG tct Gct GGC ACC CAG GAG GAT GCT GGC tcc CTg aGG GTC TTC Act GAG	991/331	
V I C E S A G T Q E D A A S L R V F T E			
1021/341	GCC ATG ACC AGG TAC TCT GCC CCT GGC GAC CCT CCC CAG CCT GAG TAT GAC CTG GAG	1051/351	
A M T R Y S A P P D P G P Q P E Y D L E			

FIG. 1 3B

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1081/361	cTg ATC ACC TCC TGC TCC AAt GTC Tct GTg GCC CAT GAT GCC TCT GGc AAG aGG GTC	1111/371
1141/381	L I T S C S S V S V A H D A S G K R V	1171/391
TAC TAC CTg ACC aGg GAC CCC ACC ACC CCC CTg GCC AGG GCT GCC TGG GAg ACT GCC AGG		
Y Y L T R D P T P L A R A W E T A R		
1201/401	CAC ACC CCT GTg AAC TCC TGG CTg GGC AAC ATC ATC ATG TAt GCC CCC ACC CTG TGG GCC	1231/411
H T P V N S W L G N I I M Y A P T L W A		
1261/421	AGG ATG ATC CTG ATG ACC CAC TTC TTC TCC ATC CTg CTg GCC CAG GAG CAg CTg GAG AAG	1291/431
R M I L M T H F F S I L L A Q E Q L E K		
1321/441	GCC CTG GGC TGC CAG ATT TAt GGC GCC ACC TAC TTC ATT GAg CCC CTg GAC CTg CCC CAG	1351/451
A L G C Q I Y G A T Y F I E P L D L P Q		
1381/461	ATC ATC CAG aGg CTg CAT GGC CTg tct GCC TTc TCC CTg CAC tcc TAC TCC CCT GGC GAG	1411/471
I I Q R L H G L S A F S L H S Y S P G E		
1441/481	ATC AAC AGG GTG GCC TCC TGC CTg AGG AAG CTg GGC GTg CCC CCC CTG aGg GTg TGG AGG	1471/491
I N R V A S C L R K L G V P P L R V W R		
1501/501	GAC aGG GCC AGg tct GTg aGg GGC AAG CTg CTG TCC CAG GGC AGG GCT GCC ACC TGT	1531/511
H R A R S V R A K L L S Q G G R A A T C		
1561/521	GGC AAG TAC CTg TTC AAC TGG GCT GTG AGG ACC AAG CTg AAg CTg ACC CCC ATC CCT GCT	1591/531
G K Y L F N W A V R T K L T P I P A		

FIG. 13C

1621/541	GCC TCC CAG CTG GAC CTg Tct GGC TGG TTt GTg GCT GGC TAC tct GGC GAC ATC TAC	1651/551
A S Q L D L S G W F V A G Y S G G D I Y		
1681/561	CAC tCC CTG TCC aGg GCC aGg CCC aGg TGG TTC ATG TGG TGC CTg CTg TCT GTg	1711/571
H S L R A R P R W F M W C L L L S V		
1741	GGc GTg GGC ATC TAC CTG CTg CCC AAC aGG TGA	1771/591
G V G I Y L L P N R *		

FIG. 1 3D